AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph starting at line 28 on page 4 with the following paragraph:

If a cell is shaded or otherwise not receiving sunlight, in order for the current to choose the diode path 202, the turn on voltage for the diode path 202 must be less than the breakdown voltage along the cell path 201. The breakdown voltage along the cell path will typically be at least five volts, if not more. The Schottky contact [[207]] 111 requires a relatively small amount of voltage to "turn on" – 600 milivolts. However, to pass through the Ge junction 104, the bias of the Ge junction 104 must be reversed, requiring a large voltage. Reversing the bias of the Ge junction 104 requires approximately 9.4 volts, so nearly ten volts are needed for the current to follow the diode path 202 in FIG. 2A. Ten volts used to reverse the bias of the Ge junction is ten volts less than otherwise would be available for other applications. The device illustrated by FIG. 4 is therefore a functioning bypass diode, but an inefficient one from a power utilization perspective.

Please replace the paragraph starting at line 9 on page 5 with the following paragraph:

The effect of the metal 107 is to "short" the Ge junction 104 to the base of the Ge cell 104. Because of the short, a minimal voltage is required to pass current between the layer 113 and the Ge substrate. No longer is a high voltage required to force the current through the Ge junction 104. The current flows easily through the "short path" 107. FIG. 2B provides a schematic representation. If the solar cell is shaded, no longer is the cell forced into reverse bias to pass the current of the array string. There is a much less resistive path, requiring a much lower voltage drop, for the current to pass through the bypass diode [[202]] 203. With the addition of the metalization 107, the Ge cell 104 is shorted. As a result, rather than a reverse biased diode with a 9.4 turn-on voltage, the current instead encounters an ohmic resistance path represented by the resistor 204.

Please replace the cover page with the following cover page:

UNITED STATES PATENT APPLICATION

Of:

Paul R. Sharps

Marvin Brad Clevenger

Mark Stan

For:

~~**An Apparatus and Method for Optimizing the Efficiency of a Bypass Diode in**~~ **Multijunction Solar ~~Cells~~ Cell with a Bypass Diode**

[DOCKET NO. ~~1613370-0026~~ 1002]

Prepared by:

WHITE & CASE LLP
1155 Avenue of the Americas
New York, NY 10036
(650) 213-0300